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The magnon BEC observation by switch off method

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Abstract

© Yury Bunkov, 2017. The Bose-Einstein condensation (BEC) corresponds to the formation of a collective quantum state in which macroscopic number of particles is governed by a single wave function. The magnon BEC forms by excited non-equilibrium magnons and manifests itself by coherent precession of magnetization even in an inhomogeneous magnetic field. The magnon BEC is very similar to an atomic BEC, but the potential of the interaction between magnons may variate very significantly. The superfluid phases of 3 He are the best antiferromagnetic system forinvestigations of magnon BEC and spin superfluidity. The 6 different states of magon BEC were observed in 3 He. Recently magnon BEC was observed in antiferromagnets with Suhl-Nakamura interaction and ferrites.Here we review for the first time the switch off NMR method, when magnon BEC forms during a long radiofre-quency pulse. The new experimental results are discussed.

Keywords

BEC of quasi-particles, Non-linear NMR, Spin superfluidity, Supermagnonics

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